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RECORDS OF ABNORMAL VARIATIONS AMONG FISHES.

1. *Albinism.*

In the Museum of the Chicago Academy of Sciences there is a mounted specimen of an adult albino bow-fin (*Amiatus calvus*), caught by Mr. George Wilcox at Kouts, Indiana. Mr. Frank Woodruff, Curator of that museum, who has kindly given me permission to record this interesting specimen, states that it was a typical pink-eyed albino.

A mounted albino gar, adult of *Lepisosteus platostomus*, was examined in October, 1917, at Pepin, Wisconsin. It was said by its owner and several fishermen of that place to have been caught in Lake Pepin, and to have been golden-colored in life, with pink eyes. They also referred to a red buffalo (*Ictiobus sp.*), which had been caught in Lake Pepin.

Among a number of adult albinistic brook trout (*Salvelinus fontinalis*), observed last year in the Rothschild Aquarium in Chicago, the following four types were represented:

- a. Eyes black; red spots evident.
 - b. Some black pigment on body.
 - bb. No black pigment on body.
- aa. Eyes pink; no black pigment on body.
 - c. Red spots evident.
 - cc. Red spots not evident.

2. *Simous malformation.*

One of the several medium-sized "blue cats" (*Ictalurus furcatus*) alive in the Rothschild Aquarium of Chicago shows a typical simous (or "bull-dog") malformation of the head, such as is often seen in hatchery salmonids.

3. *Elongated fins.*

One of the many adult individuals of *Notropis metallicus* collected by Mr. H. W. Keedy of Sanford, Florida, and brought by him alive to his aquarium in Chicago, had a somewhat abnormally formed "hunchbacked" body, combined with elongated pelvic and anal fins, the latter twice as large as in normal specimens. In its swimming it was slower and more jerky than normally-formed specimens of the same species, reminding one of the similarly abnormal gold-fishes (*Carassius auratus*). Elongated fins have been recorded as rarely occurring in other fishes, as the carp (Bean, Forest and Stream, 73, 1909, p. 1022, fig.) and the tench (Billiard, Bull. Soc. Zool. France, 37, 1912, p. 376, fig. 1).

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REPTILE AND AMPHIBIAN NOTES FROM INTERVALE, NEW HAMPSHIRE.

In a recent article (COPEIA, No. 61, September 15, 1918) Dr. Evermann listed some reptiles and

amphibians encountered during a visit to Waterville, N. H. Reports on the northern distribution of these creatures generally attract interest in view of the problems of adaptation and migration toward the solution of which they contribute something. At Intervale, N. H., which is located in a valley in the same general latitude and environment as that of Waterville, a short stay during part of last August and September enabled me to make a few observations extending somewhat the data from this region. Collecting was carried on in the intervalle between North Conway and Bartlett and upon the lower slopes of Mt. Kearsage.

1. *Thamnophis sirtalis*. Several specimens were seen in the valley of the Saco and on the lower mountain slopes. One was a newly-born young in the dense pine growth called Cathedral Pines at Intervale. Its dorsal coloration was extremely light gray with distinct dark spots.

2. *Plethodon cinereus* and *P. c. erythronotus*. While not generally as common as further south, both forms occurred in several localities under fallen pine logs.

3. *Ambystoma maculatum*. Two adults were taken during a heavy rainstorm beneath a log in a dry channel of Saco river. Another record from this region (Franconia Notch in the White Mountains) is given by Fowler and Dunn (Notes on Salamanders, Proc. Phila. Acad. of Science, Jan., 1917, p. 9). That the cool coniferous forests of the Canadian zone are not entirely unfavorable to *A. maculatum* is also shown by its occurrence in the Adirondacks (Cf. B. W. Evermann, COPEIA, No. 56, April, 1918, p. 58), in Quebec and Nova Scotia (Cope Batrachia of North America, p. 61).

4. *Eurycea bislineata*. Several specimens were taken in a streamlet draining a spring at Intervale. They were large, active and very brightly colored.

5. *Desmognathus fuscus*. Several individuals occurred in the same streamlet with the preceding.

6. *Bufo americanus*. Abundant in the valley.

7. *Hyla versicolor* was heard frequently in the pine woods about Intervale.

8. *Rana clamitans* was common in pools along the Saco river.

9. *Rana palustris*, several specimens seen.

10. *Rana pipiens* was also encountered in the meadows at Intervale. In September they and both the preceding frogs were abroad in abundance in the rich meadows feeding on crickets.

11. *Rana sylvatica* was found not only in the meadows near the woods, but some distance up on the sides of the mountains. Several were taken at an elevation of about 2,500 ft. on Mt. Kearsage in the spruce woods. They were generally abundant in the vicinity of the little mountain swamps.

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DISTRIBUTION OF SCELOPORUS IN SOUTHERN FLORIDA.

When Stejneger in 1918 (Proc. Biol. Soc. Wash., 31, 1918, p. 91) described *Sceloporus woodi* he believed that its distribution was confined to Central and East Central Florida for his specimens came from Polk and Brevard counties. It seemed almost inconceivable that so conspicuous a novelty could have remained so long unnoticed did it range widely. My surprise, therefore, was very great last winter to

find that *woodi* really was abundant at several stations far to the south of the zone whence it had been reported. Throughout the lower portion of its range, down the narrow coastal strip between the Everglades and the sea, *woodi* is closely confined to the sterile areas of fine white "ridge sand" where the Spruce Pine (*Pinus clausa*) grows. These ridges of snowy sand with a ragged vegetation occur at intervals down the East Coast for instance at about five miles north of West Palm Beach, between Boca Raton and Pompano, below Pompano and about one mile north of Hallandale. At this point this environment is met with for the last time on ones southward way and not far below this the limestone area begins and but little sand can be found away from the beaches. *Sceloporus woodi* occurs sparingly at all the stations I have mentioned and near Hallandale in the last little patch of Spruce Pines a few individuals may be found but none a yard farther to the southward.

From New Jersey southward *S. undulatus* occurs widespread, especially in pine or scrub oak woods and Dunn (Bull. Amer. Mus. Nat. Hist., 37, 1917, p. 627) has noticed that it is found up to about 3,000 feet in the mountains of North Carolina. In Florida I have often wondered whether perhaps its range was not roughly coterminous with that of *Geomys*. The pocket gopher called for some unknown reason "salamander" in Florida occurs in the Black Jack oak ridges and their characteristic mounds of freshly turned-up white sand are conspicuous at various scattered localities in Eastern Florida as far south as Eau Gallie, where there is a large colony right in the town. I have never seen a "salamander" mound south of the Eau Gallie creek, but I have heard that there were a few down near Micco or Malabar. There is

one *Sceloporus undulatus* in the Museum marked Eau Gallie, Florida, T. Barbour collection which was a part of the first accumulation of reptiles I ever possessed. Whether I actually caught it myself, I can not remember, but I was at Eau Gallie a good deal during my youth. It may have been brought or given to me by someone who had been to Florida and I may easily have dropped it into a jar of Eau Gallie material little appreciating until somewhat later in life the value of exact locality data. I have received, however, fresh material from Eureka in Marion County and Orlando in Orange County. As yet there are no observations to show whether or not the two species occur anywhere together. Certainly *undulatus* does not occur at Sebastian, St. Lucie County, where Mr. Geo. Nelson collected for months this year and took many *woodi*, nor does it occur farther south where the writer was collecting at the same time. To find out whether or no *undulatus* was as closely associated with one plant formation as *woodi* appears to be I wrote Mr. A. G. Reynolds of Gulfport, Florida, who answers thus: "*Sceloporus undulatus* inhabits the Piney woods, Black-jack ridges and the high hammocks In the Black-jacks about Fruitland Park, Lake County, where I have collected them, they are very plentiful When on a burnt log they often try to escape capture by running a short distance, then squatting suddenly to escape notice. Where the land is cleared they are found on fences, stumps or the sides of houses, but they are rarely seen on the ground. I have never seen this lizard in this neighborhood (Gulfport, near St. Petersburg) and I do not think it occurs in the southern part of the Pinellas sub-peninsula. However, at Clearwater, Southerland and other places in the Piney woods in the northern part of this (Pinellas) County I am told that it is abundant." Mr. Reynolds adds that

they occur only in land which has a good drainage and where no water stands. Mr. Nicholson writes that about Orlando it occurs only in the high hammocks or in the oak ridges. Thus, it would seem that *undulatus* had a far more varied habitat than *woodi*. The latter also is *generally* seen on the ground. Further notes on the localities where these two species may be found will be awaited with much interest and to delimit accurately their ranges will be a problem very well worth the trouble of solving.

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AMBYSTOMA OPACUM AT FLORENCE, MASS.

Recently a good deal of information has come to light regarding the breeding habits of *Ambystoma opacum* in the fall. The following concerns the animal in the early Spring. The locality, too, is rather far North and inland.

At the head of Broad Brook, a small tributary of the Connecticut, just outside of Florence, Mass., there is a series of swamps and small pools. The altitude is about 200 feet. There are many outcrops of the country rock in all directions so that there can be but little depth of soil under the pools.

In one of these pools on April 7, 1917, I found eggs of *Ambystoma maculatum*, and later caught several adults at night in the pool. I visited the pool in the Fall of 1917, but found it completely dried up.

On April 15, 1918, I again visited the pool. The ice had just gone after the very severe winter, but there were a few egg masses of *A. maculatum* in the water, and I decided to return that night in the hope of getting some adults.

I did so, and got a few. Woodfrogs also were breeding in the pool and Peepers were calling from the swamp nearby. As I flashed the light from the carbide lamp over the surface of the pool I became aware that a great number of *Branchippus* were swimming just below the surface, and very beautiful they looked, translucent and faintly iridescent. It was the first time I had ever seen them and I watched them for some time. Now and again something or other coming from below caused a disturbance in the swirling ranks of the *Branchippus*, and the disturbers soon were recognized as larvae of *Ambystoma*.

I caught a few and carried them to the laboratory. They were 26.5 mm. in length and had no hind legs though the fore legs were well developed. This backwardness of the hind legs had been noticed before in larvæ hatched from eggs taken from the nest. These larvæ must have been hatched from eggs laid in the fall. It is interesting to note that the pool was dry in the fall previous to the appearance of the larvæ.

A. maculatum was breeding at the time and the eggs of that species would not have hatched for weeks. *A. jeffersonianum*, the other species of the neighborhood, is known to be a spring breeder. Neither of them evinces the peculiar backwardness of the hind legs so noticeable in *A. opacum*.

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